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This study, prepared as a part of a comparative study of the Cleveland and Columbus Union catalogs (LI 000 788), reviews the literature on the subject since 1956 under the headings: (1) historical overview, (2) functions of a union catalog, (3) operational costs, and (4) new technology. A bibliography of 32 items is appended. (RP)

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UNION CATALOGS AND BIBLIOGRAPHIC CENTERS

A State-of-the-Art Review

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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1968

for the
State Library of Ohio

UNION CATALOGS
AND BIBLIOGRAPHIC CENTERS

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for

The State Library of Ohio

The State Library of Ohio
65 South Front Street
Columbus, Ohio 43215

Members of the Advisory Council, Title III, LSCA, June, 1968

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INTRODUCTION

This bibliographic study was prepared as part of a study[1] the School of Library Science at Case Western Reserve University undertook for the State Library of Ohio in late 1967. The study, which analyzed aspects of the nature and operation of Ohio's two union catalogs, was commissioned by the State Library Board upon the recommendation of the Advisory Council for Title III of the Federal Library Services and Construction Act.

This paper provides a useful introduction to some of the important writings about union catalogs and bibliographic centers, and the State Library of Ohio therefore has made it available to libraries throughout Ohio and the nation.

The State Library is grateful to Dr. Jesse H. Shera, Dean, and Dr. A.J. Goldwyn, Associate Dean of the School of Library Science, under whose direction the union catalogs study was completed, and to each of the members of the Title III Advisory Council. Their work and the interest they have shown in developing cooperation among libraries in Ohio is much appreciated.

Joseph F. Shubert
State Librarian
June 1968

[1] Kuncaitis, Yadwiga and A. J. Goldwyn. Comparative Study of the Cleveland and Columbus Union Catalogs. Cleveland: School of Library Science, Case Western Reserve University, 1967.

(Produced in limited quantity; copies have been deposited with the ERIC Clearinghouse at the University of Minnesota and are available on interlibrary loan from The State Library of Ohio.)

REVIEW OF THE LITERATURE ON UNION CATALOGS AND BIBLIOGRAPHIC CENTERS

I. Historical Overview

Interlibrary cooperation on local, regional, national and international levels has been discussed in library literature for centuries. The necessity of cooperation has been felt strongest in countries and regions—including our own—where libraries not able to meet the needs of their patrons, mostly for economic reasons, started looking for assistance from other libraries. Interlibrary loan systems have developed and with them centralized catalogs, "union catalogs," as they are usually called, established to locate items which an individual library does not own. We find many articles in the library literature of all countries and, more recently, in the *Unesco Library Bulletin,* which deal with the establishment of cooperative efforts in many new and developing countries.

Although for the purpose of this survey it was originally intended to review only the most recent literature on union catalogs and bibliographic centers, starting with 1960, it seemed worthwhile to go much farther back in time, since no substantial work on this subject has been written since 1956, when Brummel's *Union Catalogs* was published as Volume 6 in the Unesco Bibliographical Handbooks series (5). This is a rather condensed work with an extensive bibliography; the author describes the development of union catalogs in most West European countries as well as in the United States and Canada. In a very concise and clear way he further describes the function, organization, use, services, and other aspects of different types of union catalogs (general, special, local, regional, national). This little handbook remains the basis of later discussions of union catalogs.

A monumental work on union catalogs, Downs' *Union Catalogs in the United States* (10), is a real classic. Compiled in 1941, it is a very thorough and detailed survey of all regional union catalogs in the United States, with numerous tables, figures, an index and an appendix including instructions for the selection of entries to be included in the union catalog, sample forms and a Directory of union catalogs in the United States. It not only describes in detail all aspects related to union catalogs, but also describes the methodology of his survey. After more than 25 years, Downs' book is still discussed and referred to by all those interested in regional union catalogs.

Another very detailed work, which treats a specific national union catalog, the Swiss Union Catalog, was written by its former director Dr. Eugen Egger (11) under the title "Gesamtkataloge" and published in *Libri* 1956, vol. 6 no. 2, covering 73pp., with tables and an extensive bibliography. Although it is concerned with the Swiss Union Catalog, descriptions referring to the establishment, organization, methods of compilation, holdings, type of entries, material and subject represented, administration, personnel, cost, use and services, contributors, and the form and types of requests can be applied to any union catalog. This study is an impressive landmark. The ideas and recommendations presented here can still be useful in setting up new union catalogs or in evaluating existing ones.

A number of periodical articles published in the United States, in England and on the Continent in recent years, show the trend of new union catalogs and deal with more specific aspects of union catalogs and bibliographic centers. For example, a 1966 article by Silver Willemin (29), the present head of the Swiss National Union Catalog, "Technique of Union Catalogues: A Practical Guide," may be considered as a modern version of Brummel's *Union Catalogs.* Willemin discusses briefly but in detail the different types of union catalogs, and presents practical advice for their establishment, organization, administration and services. Having in mind the needs and possibilities of countries which have not advanced to the point of library automation and computerization, he does not offer more "sophisticated" means for the function and services of union catalogs.

L. N. Malclés (17) in her *Manuel de Bibliographie,* 1963, devotes a whole chapter to union catalogs; she presents their early history and function as well as their spread in different European countries and America. She gives the different stages in their evolution: local union catalogs (inventories of local material), regional union catalogs which prepare for the national ones, and finally, continental inventories, eventual forerunners of the "world catalog" – a far-away dream, as she admits.

Early developments of union catalogs are traced, with 1410 given as the date of the first attempts at a union catalog by the monk John Boston de Bury in his *Catalog Scriptorum Ecclesiae.* During his visits to England's monasteries, he arranged manuscripts in alphabetical order, assigning a number for each library, and for the manuscripts belonging to each. Later, the efforts of a central bibliography continued in France (1791, 1794). The idea of a universal bibliography fascinated bibliographers long before the advent of today's seemingly limitless electronic aids. Today, when these "marvels" are readily available, aspiration for a bibliographical utopia still persists. Downs (10) discusses the establishment of the first American union catalog, that maintained by the Library of Congress, in the beginning of the present century. The history of all of these earlier cooperative ventures, both in Europe and in America, is clouded somewhat by the lack of clear distinctions in the literature between union lists (of serials or periodicals) and union catalogs, or between national and regional compilations of either kind. Jewett, for example, was proposing the establishment of a national union catalog as early as 1847, and recognized even then many of the problems of such a compilation.

In most Western European countries only national union catalogs were established, but the United States, Great Britain and Germany developed nets of local and regional union catalogs, justified mostly by the larger size of these countries. In the United States, as illustrated below, the catalogs became projects sponsored by the Work Progress Administration (WPA) during the economic depression in the 1930's.

Plans for the establishment of bibliographic centers and union catalogs or the development of existing ones and the different aspects connected with these services are discussed in a number of articles. Perhaps the largest bibliographic center is the Bibliographic Center for Research, Rocky Mountain Region, Inc. covering Colorado, Nevada, Utah, Wyoming, North Dakota, South Dakota, Nebraska, Kansas, Arizona and New Mexico, the number of member libraries being 245 in 1961 and 194 in 1964. Swank (27) made a very thorough sruvey in 1966 of this Bibliographic Center and its Union Catalog, presenting extremely valuable recommendations.

Another large regional union catalog is the Pacific Northwest Bibliographic Center (21 and 24), with almost 4,000,000 cards in 1966. Since its establishment, it has handled over 8,500,000 cards. In some eleven years, the union catalog at this Center has reported a total of 274,659 regional locations for inclusion in the printed National Union Catalog. This Center cooperates with libraries outside the region by checking lists for locations in its union catalog. Each week the Library of Congress List of Unlocated Research Items is checked and the located items reported to the searching library.

The oldest regional union catalog in the United States is the California Union Catalog at the California State Library. Established in 1909, it was at first a union list of periodicals in the libraries of California. Later, cards for book holdings were added. In 1914 a Library of Congress depository catalog was acquired and used as a foundation for further expansion (22 and 9a).

The 1930's became the great decade for the founding of regional union catalogs because of the availability of free labor under the WPA program: the Cleveland, Columbus, Denver and Seattle union catalogs were established in this way (10, p. viii). The Oregon Regional Union Catalog was compiled using the holdings of the educational libraries in the state (7, p. 342), and in Philadelphia a group of historians conceived the idea and worked out plans for a local union catalog, this being the beginning of the well-known Library Catalog of the Philadelphia Metropolitan Area (9, p. 5). As most of the articles reflect, regional union catalogs generally have become parts of bibliographic centers "to meet local, state and regional needs for which there were no existing tools of service." W.S. Geller (13, p. 242) presented in 1961 a plan for the organization and administration of a bibliographic center for Southern California, including a union catalog. This enterprise was to become a non-profit California corporation, with a Board of Directors elected by the total membership of the libraries joining the Center. There is an appointed Executive Director as an administrator, and a staff of efficient catalogers. The primary source of income is membership dues from the respective libraries, as well as fees paid for services.

The role of a state library in such a cooperative effort was discussed by Constance Lee (16, p. 169-171). She lists some possible trends and developments in bibliographic control at the state level, suggesting a statewide bibliographic center sponsored by the California State Library. She points out that the State Library has always been dedicated to serve all types and sizes of libraries, public, academic, and special, and that the State Library has maintained a union catalog of holdings of a group of California libraries as the nucleus of a bibliographic center, which could easily be expanded into a statewide union catalog. In her opinion—based on an article by Dr. Lowell Martin—comprehensive coverage of every publication held in every library in the state is not necessary. She advocates expansion of coverage of the State Union Catalog at the specialized and research level, adding a bibliographic service for locating obscure and ephemeral items that normally are not included in the catalog, as well as microfilms, picture collections, manuscripts, etc. As she suggests, the bibliographic center should provide access to broader bibliographic centers, acquiring all available book catalogs, union listings, etc. It should also contain bibliographies and indexes of state material, the result being the publication of a union listing of statewide resources in state-operated libraries, as well as of special indexes and bibliographies in specialized subject areas maintained at the state level. This interesting article suggests a pattern which might be followed in Ohio. The State Library's collection could itself assume the proportions of a university

research collection, thus being able to serve at a high level the needs of the library system of the state.

A Bibliographic Center under the auspices of the State Library was opened in 1961 in Springfield, Missouri, serving public libraries and linking 26 of them in the southwestern part of the State. It was planned to connect the Center by teletype with larger centers in other parts of the country. The project was financed with Federal funds provided by the Library Services Act. Also, rather recently, a selective union catalog was established among Maine libraries, including cataloging and joint acquisition programs for public documents, interlibrary loan of books, etc. Brigette Kenney proposes the establishment of a location tool in her article (15), "A Union Catalog for Mississippi Libraries?" The plan of a Bibliographic Center for Ohio colleges and universities is discussed by W. W. Wright (32), who concludes that the difficulty lies in the inability to secure financial support. Wyman Parker of Weslyan University (23) recommended in 1963 the establishment of a Bibliographic Center for Ohio consisting of three major parts: A Union Catalog, a comprehensive collection of available microforms, and several secondary service programs. On an international level, a regional bibliographic center with a union catalog for the Caribbean area has been proposed and was discussed at a meeting in San Juan, Puerto Rico. Union catalogs and their problems are discussed in the Japanese library literature, as reported by Hatsuo Nakamura (20, p. 93). He had published a series of articles relating to the problems particular to Japan, discussing the purpose and uses of union catalogs. It appears that Japan had a Union List of Chinese Material as early as 1898, along with listings of foreign materials available in Japan.

II. The Functions of a Union Catalog

Almost all authors unanimously define a Union Catalog as an "inventory common to several libraries and containing some or all of their publications listed in one or more orders of arrangement."

Discussing functions, it is necessary to start with Dr. L. Brummel's definitions cited by Van der Wolk (28, p. 377). The fundamental ones are:

1. location of a given book and periodical
2. assistance in loans
3. co-ordination in acquisitions
4. bibliographical information
5. conservation of the lists of titles owned by the participating libraries.

Brummel and Egger (6, p. 12) assign two other tasks to the union catalog: information service and co-ordination of the interlibrary loan system. These are only, in a sense, expansions of the five listed above.

In her article "The California Union Catalog," E. W. Bruno (7, p. 342) emphasizes that while the most valuable practical function of the union catalog is a "finding list" for locations of titles requested from the State Library on interlibrary loan, it is also a repository of information on the bibliographic wealth of the State of California. As a potential function, she mentions the possibility of ascertaining the subject coverage of libraries in the state.

According to Oathout (22, p. 233), the California Regional Union Catalog performs for California a function parallel to that which the National Union Catalog performs for the country as a whole: it is a central finding agency for materials in

public libraries. If no California library lists the title, a source outside the state is given to the requesting library.

Willemin (29, pp. 20-22) stresses the principal function of the union catalog as being a tool for interlibrary loan. He mentions another function that derives from the principal one, that is, the transformation of the union catalog into the nucleus of a bibliographic center, which in turn ultimately becomes also a bibliographical information service. He suggests that a union catalog should be furnished with an extensive bibliographic reference collection, because it is not "a tool that can be used alone."

The coordination of acquisitions leads to another function: the planning of stock; that is, if various issues of the same titles of periodicals may be found in a number of different libraries, an accessible central record will obviate the necessity for duplicative holdings.

In reviewing the above functions, Egger (11) adds as a result or byproduct the compilation of special bibliographies, lists of libraries, film negatives, etc. He sums up the role of the union catalog in Roloff's (25, p. 254) words: "The purpose of the union catalogs is to overcome the special distances;" they represent the "actual unification" of libraries. Egger points out that since a great proportion of the requested items are found in "not-public" libraries, a close cooperation is needed between all kinds of libraries: academic, government, industrial research, etc., so as to give the union catalog a universal character. A great advantage seems to be also the inclusion of early material of historical or archival interest.

Oathout (22) recommends a study of the change of pattern for contributing libraries. Participation of large libraries or of libraries with holdings of unique and highly specialized material should be encouraged. Geographic distribution and the organization of libraries within the state should be reconsidered. Interlibrary loans should be handled at the union catalog, according to the practice followed by the California Union Catalog. When a standard interlibrary lending form is received at the Union Catalog with a request for location, the names of libraries which possess the requested items are added to the form, and it is sent to the library which has received fewest requests from the Union Catalog. In this way the loans are evenly distributed. Adjustment, in practice, is made to favor the library nearest the requester. Oathout further suggests that if the item is not located in the Union Catalog, the request should be sent on to other union catalogs. This procedure considerably enhances service to the user, who soon realizes he can obtain an item more rapidly by applying directly to the Union Catalog. Among the items of policy recommended here are that membership reciprocity be established for lending books, and that participation (contribution) in the Union Catalog might be a condition for use of the interlibrary loan service.

Willemin (29) considers the necessity for the establishment of an International Loan Center in various major countries, each to consist of a union catalog and an information service. He summarizes the function of such a center, as indicated by Brummel and Egger (6), as follows: 1) to transmit requests from abroad to the national library system; 2) to route book requests within the country in the usual union catalog fashion; and 3) to prepare statistics and communicate the figures annually to the General Secretary of IFLA.

That each union catalog possess an extensive bibliographic apparatus is particularly stressed by E.E. Campion (9). Since entries have to be identified and

their accuracy checked for form of spelling as well as for correct bibliographic form, she also stresses the importance of numerous cross references in the catalog.

Discussing the additional services of a union catalog, Oathout (22) points out the importance of a library's checking on the availability of an expensive item before purchasing it. To prevent excessive duplications of expensive items, it is suggested that all purchasing by the union catalog of material over a certain price be screened, and that possessions of other libraries in the region be checked. As an additional service, the California Union Catalog is planning the preparation of an index to special collections and subject concentrations, as an aid to directing inquiries to the right sources. A union catalog can also encourage division of fields of acquisitions by libraries in the state—can, in fact, coordinate specialization by its various members. Further a union catalog can arrange cooperative storage for little-used material, and can ascertain that there is at least one copy still available somewhere in the area. This "last-copy" function is a useful one.

Cynthia J. Willett (30) mentions the necessity to study the requests of the very small libraries, since the large ones turn directly to the national sources of information. Speaking of the Rocky Mountain Center, she mentions that the function of a bibliographic center should be to study the resources, to share knowledge about the resources and to coordinate this knowledge. Also, it is necessary to relate its operation on the regional level to national cooperation. The building up of areas of specialization within the region is thus again suggested as one of the functions of a union catalog.

Different types of organization of union catalogs are discussed and suggested. Malclés (17, p. 64) refers to P.H. Michel's (18, pp. 162-171) idea to set up a union catalog in three parts: Books published before 1500; books published between 1500-1800; books published after 1800, since each period is of interest to different categories of researchers. On the other hand, Egger (11, p. 106-108) maintains that the union catalog should not be limited by either the number or the character of contributing libraries, or by time periods or subjects, but rather that it have a comprehensive coverage which, in his opinion is the main feature of such an enterprise. It will be noted that the purpose of the union catalog so visualized is essentially different. Yet, as Swank (27, p. 61) points out, in most cases no consistent policy is being followed on what should be reported to the union catalog regarding form and subject of material. The question as to whether or not fiction should be included, for example, is still a subject of discussion.

Willemin (29, p. 14) recommends the use of punched cards for union catalogs. This would make it possible to re-group the entries automatically in a particular order, enabling the setting-up of a *subject* union catalog if so decided: of course, introduction of punched cards would imply a prior revision of catalog cards. In good European tradition, Willemin further discusses the systematic versus the alphabetic arrangement of the catalog, pointing out, however, that a general agreement seems to favor an alphabetic arrangement as seemingly more suitable for general catalogs and easier for fast filing. Egger (11) however, suggests the combination of alphabetic and systematic arrangement, since subject approach is very often requested. He notes, however, that the posting and filing of three or four cards for each title would significantly enlarge the physical size of the union catalog. Admitting that the question of whether or not to divide a union catalog into several sections is still a subject of discussion at the international level, Willemin recommends a division comparable to the Berghoeffer system of alphabetical arrangement approved by IFLA in 1956. This consists of four sections: a) index author file; b) corporate

author file; c) title-file (anonymous works and works by more than three authors); and d) periodical file. Egger (11, p. 146) also suggests the Berghoeffer filing system, explaining that 1/7 of all requests do not give the author's first name or dates, or give them incorrectly, so that the disadvantage of having only author access seems quite evident.

Most union catalogs are main-entry catalogs, yet M.E. Anders (1, p.v.) describes three which could be classified as subject catalogs: The Floridiana, Oak Ridge Union Catalog and The North Carolina State Union Catalog. These catalogs bring together location and information for materials concerning specific subject areas. In Oak Ridge and North Carolina, the coverage is restricted to the holdings of only a small number of libraries.

The importance of establishing standards of cataloging and of codes for contributing libraries is stressed by Egger (11, p. 108) and Geller (13, p. 244)–this being a prerequisite for the uniformity of a union catalog. Geller suggests that such standards should be based on the scope and practice of a large library. Eventually all member libraries should adapt their cataloging practice and policy to that of the bibliographical center, which should work out its own cataloging and classification codes: Dewey, Library of Congress or another. (Here coordination with MARC and other standard-setting activities is important.) Also, having a subject division, it should be decided what existing subject heading list to use, or to compile one for specific needs as these are recognized. As far as the code for contributing libraries is concerned, the one developed by the Library of Congress for the National Union Catalog should be employed. Willemin (29, p. 7) recommends one general catalog as compared to a set of special ones. It should include all subjects and all forms of materials, such as manuscripts, maps, engravings, musical scores, even pamphlets and offprints (related to human sciences only and not covered by index and abstract services). Records, tape recordings, films, microfilms, and Braille books should be listed for the purposes of documentary information.

Eleanor E. Campion (9, p. 5) describes procedures of integrating cards into the union catalog as used at the Union Library Catalog of Philadelphia. Here the current imprints are filed in a separate alphabet, and at regular intervals they are sent to the Library of Congress for inclusion in the published national Union Catalog. All other cards are filed in the "Latest Accession File." The locations are combined, and duplicate cards are discarded to control the size of the file. A very tight control is exercised over the filing; therefore, all 201,877 accessions received in 1964 were in their proper sequence at all times. Editing of the files has been carried out in a consistent alphabetical progression throughout the past 15 years; in this way 50 percent of the catalog has been revised so far. W. Geller (13) describes similar procedures for the Union Catalog of the California Bibliographic Center, emphasizing the responsibility of each member library to send their withdrawal notices regularly. This is also stressed by Bruno (7, p. 342), since the accuracy of the catalog is affected by the failure to do so. Service is handicapped, because inaccurate information is thus given to requesting libraries, and the resultant referral is a waste of time.

III. Operational Costs

The Pacific Northwest Bibliographic Center is housed in the University of Washington at Seattle (27). The Cleveland Regional Union Catalog is maintained at Case Western Reserve University (12), and the Columbus Union Catalog at the State Library Catalog Center. Only a few union catalogs have an independent organization

and their own budget. Two such union catalogs are described in the "Guide to Union Catalogs in the Southeastern States" (1); these are the Floridiana and the Atlantic-Athens Union Catalogs. Support for the Florida Subject Catalog comes from private donations and an endowment fund. The Atlanta-Athens Catalog is operated as an independent institution which administratively is not tied to any library, the financial support coming from payments of members of the Centers, supplemented by contributions from other institutions (1, p. v).

Other arrangements seem to work out too. The catalog of Philadelphia has three sources of income: academic and non-profit institutions, which pay annual service subscriptions from $25 to $1500; industrial organizations, which pay a minimum of $100; and private benefactors interested in the catalog's work, who pay varying amounts. In 1964, the catalog's income was $35,800; its expenditures were $37,500. Housed in the University of Pennsylvania (free of charge), in the past 25 years the catalog has expended $460,000 to file more than 2,500,000 cards, answer 258,000 inquiries and locate 744,000 items. It has been calculated that the catalog has searched almost $7,250,000 worth of material at an expenditure of only 6 percent of that sum (9, pp. 7-8). (The exact significance of this figure is perhaps somewhat obscure.)

Questions of administration and personnel have been discussed by several authors. All stress the need of an efficient well-trained staff, the number being determined by the size of the center and the scope of its responsibilities. The Union Catalog of the Philadelphia Metropolitan Area has a full-time staff of six: two professional librarians, the Director and the Assistant Director; two bibliographical assistants (one a college graduate with foreign language skills; the other, a student at library school); one clerk-typist, and one clerk, plus two part-time experienced filers (9, p. 10).

IV. The New Technology

More recent periodical literature on union catalog and bibliographic centers discusses the application of modern information storage and retrieval media and techniques. For example, H.C. Campbell, Chief librarian at the Toronto Public Library (8), discusses the possibility of establishing a computerized catalog or bank of bibliographic data which would be available to any library on-line to the computer. Such a machine-catalog would supply instant information, including location, about any book or other material, providing that such material had been previously recorded in the computer. The article analyzes the possibility of cost, feasibility and system design to record some 30,000 items. He suggests the use of the Metropolitan Bibliographic Center Union Catalog during the first stage of development. Since the University of Toronto has data for catalogs for the libraries of the New Universities of Ontario on magnetic tape, and the National Research Council Library began to put more than 10,000 serial titles on punch cards in 1962, all this could serve as the nucleus for the mechanized catalog. Also, he considers the possibility of purchasing copies of magnetic tapes, at $1,000 each, of one year's cumulation of *Index Medicus* (MEDLARS project) from the National Library of Medicine. Other computer input would presumably become available from several specialized science information centers to be established in the United States. He observes that the New York City University is testing, under a grant from the Federal Urban Renewal Agency, a system of storing and retrieving bibliographic references to material published and used by renewal and planning specialists, and that eventually computer tapes will be available to other information centers. This is the URBANDOC project.

Campbell also points out that the successful operation of a computerized catalog depends upon the imposition of cataloging rules on all contributions of bibliographic data received at the central catalog. Since cataloging has to be adapted to computers, a study in this field has been conducted to determine the best entry and the use of entries in the requests. The Ontario New Universities Libraries Project is evidently unique in covering the whole range of related subjects. For its very high standards it has been recommended by the Library of Congress to serve as a model and leader to other libraries planning to computerize their catalogs. As far as the Canadian system is concerned, Campbell suggests the simplest format for a machine catalog that will yield author, title, and location. This seems minimal.

The Yale-Harvard-Columbia cooperative effort for medical literature reports that fewer than 20 percent of the inquiries made of their separate card catalogs used a subject approach to the information. Nevertheless, they included subject indexing in the computer catalog, to an average of three subject headings per title. So far this is considered an expensive, full-scale cataloging. But there exist other possible systems as well, such as: 1) simple input of author-title-location; 2) author-title-location together with publisher, publication date and latest copyright date; 3) author-title-location with full catalog entry, fully retrievable by inquiry under title; 4) full-scale cataloging, including three or four subject headings per title; and 5) any of the preceding, plus documentation inputs. The author further discusses the cost of the hardware varying from one company to another, bringing the cost of the total rental to $10,335.00 per month and salaries to $5,750.00; thus total equipment and staff per month amounts to $16,085.00. W. Morrill (19) mentions a "semi-sophisticated machine-assisted union catalog" for the bibliographic center planned by the Ohio College Association. This plan, of course, pre-dates the establishment of the Ohio College Library Center and the appointment of its Director, Mr. Frederick Kilgour, in 1967. He proposes a union catalog on microfilm as a first step to a fully automated system with punched cards, magnetic tapes or discs, ready to give any information on location and availability of an item in any academic library in the State. In this way book-catalogs of the entire holdings of the State could be produced. The bibliographic center would take care of interlibrary loan, which would serve as a clearinghouse for all out-of-state loan requests, directing them to the right location. On the other hand, all intra-state requests not found in the State could be channeled to other bibliographic centers and even to the Library of Congress. Morrill emphasizes that library cooperation has to go along with automation, that is, union catalogs and bibliographic centers have to be based on various forms of automation.

Walter W. Wright (32), Director of the Ohio University Library, expresses similar ideas about a fully-computerized union catalog. A book catalog thus produced would be placed in all participating and using libraries. Computer techniques for bibliographic control are also urged by C. Lee (16), suggesting a cooperation between the University of California system and the State Library. If both agencies put their holdings in machine-readable form, the result would be statewide computer access to the information, and an integrated book catalog printed by computers. Miss Lee suggests that these book-catalogs should be made available, without charge, to public libraries, research centers, academic, and special libraries.

Based on his experience of the book-catalog produced by the Los Angeles County Public Library, William S. Geller (13) broadly discusses a union catalog in book form produced by electronic equipment. The scope of this catalog includes

books, documents and pamphlets, and could include periodicals, phonograph records, films, microcards, and other library materials. In his opinion, whatever can be cataloged can be included in this type of union catalog. The catalog is coded as to location by region, so that it is easy to see the entire holdings of the system involving 200,000 titles, and at the same time to identify what titles are in each region. Supplements should be issued once a month with annual cumulations, and the entire catalog should be revised every three years.

H. Nakamura (20), however, expresses doubt about the effectiveness of a union catalog in book form, considering it "a fragment of the card-catalog," which can cover only a limited period. Sections of the catalog should be published in book form only when there is a demand for a certain segment of the information as, for example, references on a certain subject.

Quite a new and interesting project for a modern regional union catalog to serve six New England States at a reasonable cost by combining existing library tools and a computer memory is presented by A. Schreiber (26). He suggests the creation of a regional union catalog based on Library of Congress card numbers. *Publishers' Weekly, Cumulative Book Index,* and the Library of Congress catalogs of printed books both authors and subjects should be used. The Library of Congress card number for each title should be fed into the machine together with a location symbol for each individual library in the system. Since only one punch card is sufficient (he says) for a number of books, 200,000 Library of Congress card numbers at 40 locations could be stored on disc file. Like others, he insists on having book-catalogs printed out and updated periodically, then distributed to all interested libraries. In addition, a direct contact between libraries and the bibliographic center by mail or telephone should be maintained. Desired data lists (lists of Library of Congress card numbers for which no location has been entered) and exchange of "memories" with other similar union catalogs establishing a national network, would be by-products of such a computerized union catalog. He also suggests the keeping of a microfilmed shelf-list as an insurance record. It would be very important to interest industry in these services and to have them contribute. Crucial to this scheme, of course, is his promise that the Library of Congress number alone is sufficient identification for a book and its contents.

Other by-products of an automated union catalog are mentioned by various authors. Oathout (22) considers that if each library has a print-out copy of the union catalog, interlibrary loans can be arranged directly between the members, thus alleviating the formidable task in this field at the bibliographic center. Another by-product of a bibliographic center would be to announce the bibliographic tools at the center: lists of expensive abstract compilations, digests, etc., would be made available for use as guides by regional libraries in their reference material purchase program.

Since standardization of catalog and classification codes and uniform subject headings would have been developed in setting up the center, centralized processing could be put on regional or statewide basis, releasing member libraries for other types of professional work.

The teletype seems to be the generally accepted medium for dependable contact between institutions. A very detailed description of the role and cost of the teletype service for union catalogs has been given by Van der Wolk (28); he attaches results of a survey regarding the cost in 1961 for each European country. Teletype is used for several related purposes:

1. to transmit data which must be entered into the union catalog by daily reporting titles, which are entered into the catalogs of member libraries, thus keeping the union catalog completely up to date;
2. to receive and answer requests;
3. to contact associated union catalogs at home and abroad;
4. to consult the applicant where more information is needed.

The union catalog should bear only expenses of installation and of annual subscriptions for the teletype equipment, charging the applicant with the cost of the calls. Many libraries are already connected by teletype, especially the industrial ones, and it is interesting that this library application has found less favor in the United States than in Europe, where distances are shorter and mail service, as a rule, far superior.

C. Lee (16), speaking of possible trends and developments in bibliographic control at the state level, also urges the establishment of rapid teletype and telephone communication facilities which connect the state library to regional research centers, public systems, etc., throughout the state. Also recommended are facsimile transmission facilities and expanded facilities for copying material in the state library collections, as well as added facilities for printing from microprint forms. As a final achievement, she sees future instantaneous computer access to information at the state library through teletype and telephone equipment.

The need for the existence of regional union catalogs is stressed in E.E. Campion's article (9) on the Union Catalog of the Philadelphia Metropolitan Area. He states that "the Catalog has opened a great store of library collections to those who need and use it to advantage. All sorts of possibilities in cooperation are developing through close collaboration between the Union Catalog and the regional research libraries."

M.E. Anders (1) mentions the suspicion and disfavor with which the union catalog has been viewed in recent years. Many critics have concluded that, in view of the limited use made of them, such catalogs are too expensive and too burdonsome to maintain. Nevertheless, she refers specifically to seven regional union catalogs and to the development of an eighth one–all of which are geographically concentrated; both North Carolina and Tennessee have two regional union catalogs. Since they have been kept simple, they do not require either complicated or time-consuming maintenance. Their continued existence also suggests that they undoubtedly are meeting users' needs. None of these catalogs is operated as a bibliographic or interlibrary loan center or has any special service augmenting it. Cards for only selected libraries or subjects are transmitted to the union catalog from the Atlanta-Athens, Kentucky and North Carolina catalogs.

Other authors consider the regional union catalog to overlap the National Union Catalog and, therefore, not to justify the expense required for their maintenance. Such an opinion, somewhat qualified by circumstances, is held by R.T. Esterquest (12), who surveyed the Cleveland Regional Union Catalog in 1961. Another evaluation is offered by M.K. Buckland (4), referring to the British system. He makes a comparison between systems of several "multiple union catalogues" and of "single union catalogues." In terms of cost and performance he brings out the fact that regional union catalogs are slower and more expensive. However, he admits that most surveyors do not question the desirability of a network of union catalogs but rather suggest that such be put on a "firmer basis." His evaluation is well

substantiated by calculations and may have meaning and value for Great Britain. Yet, it seems that the size of a country and the special needs of a region are important factors in determining whether or not a regional union catalog should be established, continued or dissolved.

Brummel and Egger (6) present an impressive, although a rather utopian, solution regarding bibliographic cooperation. They point to the necessity of a "complete search," made by a union catalog upon receiving a request to locate an item. In other words, no request should ever be returned with negative results; it should be forwarded, even to the union catalog of another country if necessary, and "so forth 'til the work is located." In Europe where Telex has functioned successfully, the principal and most attractive task of librarians has become "to neglect nothing which may contribute to the closer cultural cooperation among the countries, also outside Europe."

A striking role of the union catalog is envisaged by Van der Wolk (28): a union catalog with teletype apparatus possibly linked to "electronic memorizing machines" by which the applicant would receive an answer without human aid. All libraries together must be considered as one enormous collection of literature from which materials can be easily and quickly obtained by means of teletype. Although the union catalog must guide the applicant library, the applicant library itself should decide which course to take.

IFLA in *Libraries of the World* (14, pp. 28-30) recommends the consideration of the following aspects in the establishment or development of union catalogs:

1. the use of microfilm and other means of reproduction;
2. the use of punched cards (particularly for a union catalog based on period);
3. the possibility of utilizing the title material of the union catalogs for establishing national bibliographies with the aid of new methods of reproduction;
4. the advantages and/or disadvantages of a union catalog in book-form (especially a union catalog of periodicals);
5. the use of Telex for communication between catalogs in various countries;
6. the formulation of a certain code for standardizing international loan forms;
7. the preparation of a new edition, supported by UNESCO, of Brummel's classic publication, *Union Catalogues* (5) together with a supplement; and
8. the preparation of a concise practical guide, particularly for under-developed countries.

The need for publicity and public relations pertinent to union catalogs is mentioned in "Pacific Northwest Bibliographic Center: News from the Bibliographic Center" (21). Prompt service by a union catalog is considered a most important path toward good relations. Further steps taken by the Bibliographic Center toward achieving better public understanding have led to many letters, notices, and minutes of meetings being sent to libraries and being published in *PNLA Quarterly;* brochures describing the Center and its services have been issued; a "Manual of Information for

Participating Libraries" is in preparation; and, always, visitors are welcome to take guided tours at the Bibliographic Center.

Reasons for the existence of union catalogs are expressed in numerous articles and in diverse ways. Typical of such support are the following remarks of G. Williams (31) as quoted by C.E. Lee (16, p. 168):

"Every library ought to be able to provide every one of its patrons with any published information he wants . . . . Thus, since no library, not even the largest, can hope to acquire and house every book its patrons might sometime need, it is apparent that every library must depend to some extent upon some outside source to provide what is lacking from its own collection to meet the needs of its patrons."

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